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AND

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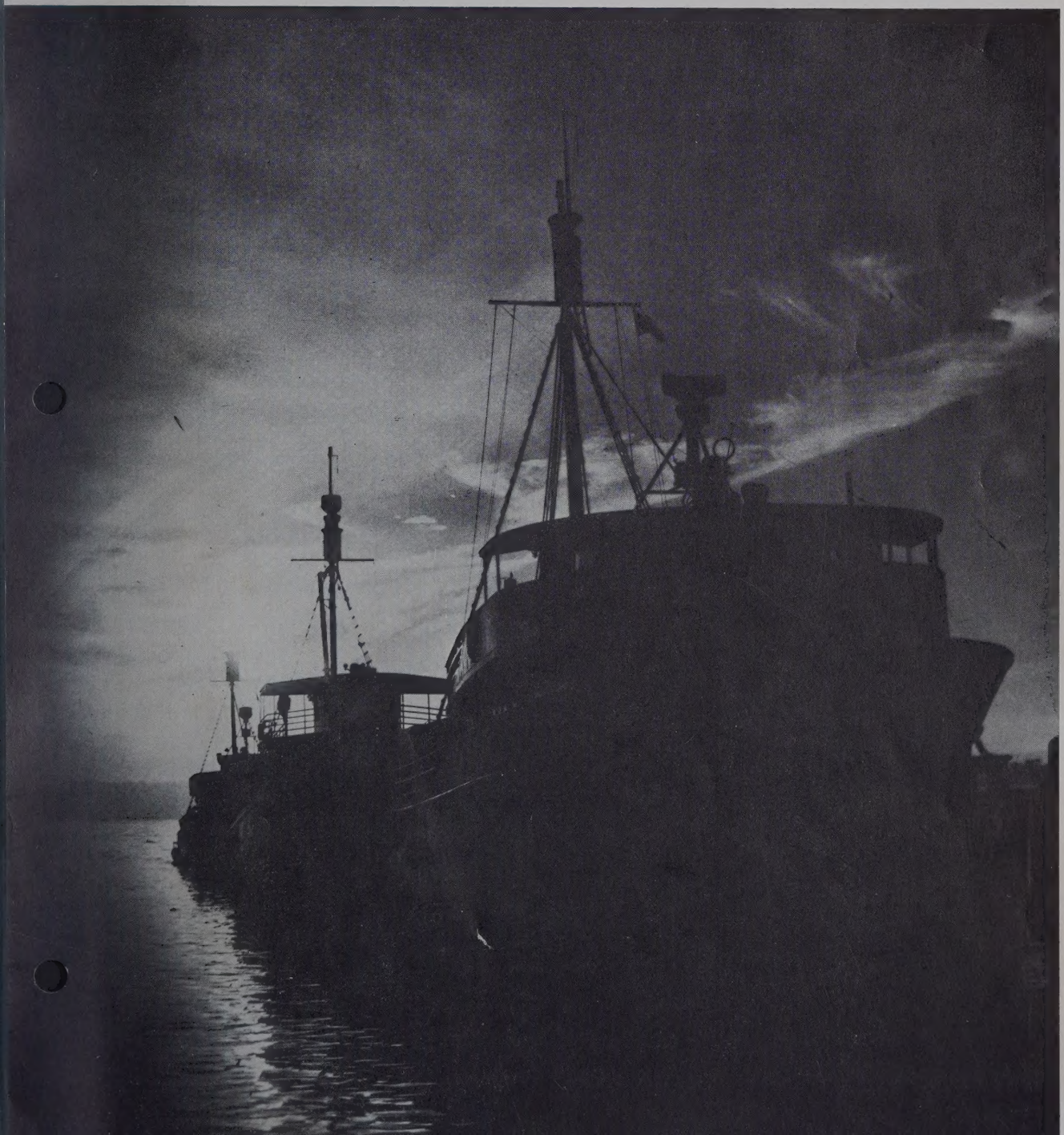

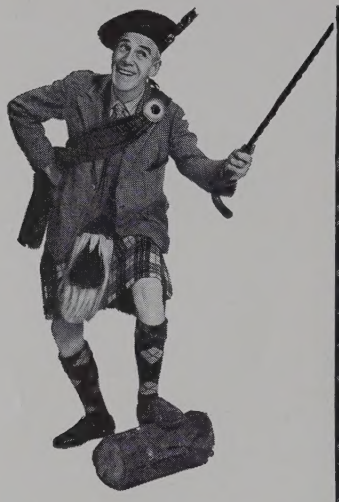

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OR

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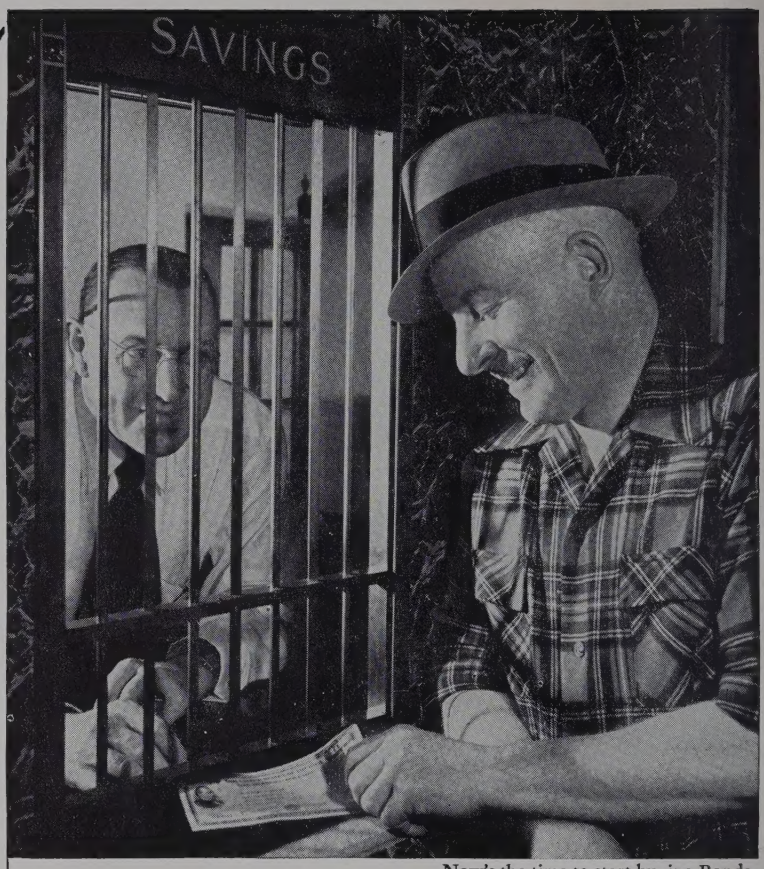

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AMERICAN TUNABOAT ASSOCIATION

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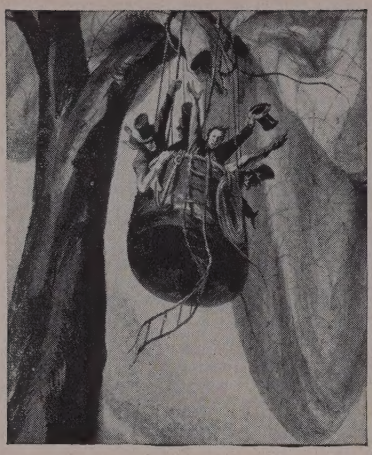
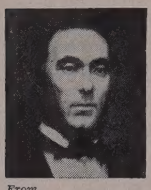


The old lady gave him what for



From AMERICAN HERITAGE

An old lady living near Henderson, N. Y. in 1859 scolded at the way the four men had arrived. Such sensible-looking men in such an outlandish vehicle!

But John Wise and his crew, perched up in a tree, were too happy to listen. Caught by a storm, their aerial balloon had almost plunged beneath the angry waves of Lake Ontario, then crashed wildly through a mile of tree-tops before stopping in one.

Now, his poise regained, Wise said: "Thus ends the greatest balloon voyage ever made." He had come 1200 miles in 19 hours, setting a record unbroken for 60 years.

He had also proved his theory of an earth-circling air current—and that was far more important to him. For Wise was no carnival balloonist. He was a pioneer scientist of the air whose inquiring mind and courageous spirit helped start the forward march of American aviation.

In such men as John Wise lies the secret of America's real wealth. For it is a wealth of human ability that makes our country so strong. And it is this same wealth that makes her Savings Bonds so safe.

168 million Americans back U. S. Savings Bonds—back them with the best guarantee you could possibly have. Your principal guaranteed safe to any amount—your interest guaranteed sure—by the greatest nation on earth. If you want *real* security, buy U. S. Savings Bonds. Get them at your bank or through the Payroll Savings Plan where you work. And hold on to them.

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Assistant Secretary for Fish and Wildlife

Ross L. Leffler has taken office as the first Assistant Secretary of the Interior for Fish and Wildlife. The Interior Department announced that he has been requested by Secretary Seaton to take a leading part in steps to amend legislation regarding sport fisheries and wildlife.

This was the first public announcement of an assignment for the new Assistant Secretary, whose position was created by the Fish and Wildlife Act of 1956, separating the Bureau of Commercial Fisheries and the Bureau of Sports Fisheries and Wildlife under his over-all direction.

Mr. Leffler's first announced assignment is to submit to State Governors a set of proposals submitted by the International Association of Game, Fish and Conservation Commissioners for amendment of the Coordination Act. This Act is described in the Interior Department announcement as "legislation of vital importance to the nation's fish and wildlife resources, since it gives these resources an opportunity to develop hand in hand with agricultural and industrial progress." The Act was framed in 1946 and proposals submitted to Secretary Seaton for review would strengthen the Act to the point of recognizing the conservation of fish and wildlife resources among the primary purposes of these developments, it was reported.

165,000 Acres Added for Wildlife

When Secretary of the Interior Fred A. Seaton last month formally designated the 24,623-acre wildlife area on Garrison Reservoir, North Dakota, as the Snake Creek National Wildlife Refuge, additions in acreage rose to a total of nearly 165,000 acres.

Fish and Wildlife Service records show that from January 1, 1953, until June 30, 1956, a total of 162,398 acres had been acquired for wildlife purposes by purchases, lease, donation or public land order. This includes the Snake Creek acreage.

In recent weeks, Secretary Seaton has added 1,000 acres more by public land orders. A total of 105,924 acres represents lands added to those administered for wildlife solely by the Fish and Wildlife Service and 56,474 acres represents land additions to those wildlife areas managed cooperatively by the Service and individual states. The new areas not only add substantial acreages but also are strategically situated to meet specific wildlife needs.

In the State of Washington, 6,167 acres were added to the Columbia National Wildlife Refuge and the 2,849-acre McNary National Wildlife Refuge was created. Smaller areas were also acquired there. Also added were a 23.5-acre addition to McKay Creek in Oregon, and a 320-acre tract made available to the Idaho Fish and Game Department.

San Pedro Still the Champ

San Pedro, California, which has been the leading fish landing port in the United States for many years again captured that honor in 1956, reports the Department of the Interior.

Landings in San Pedro in 1956, consisting largely of tuna, mackerel, and sardines, totaled 382,900,000 pounds. The value of the catch to the fishermen was $29,000,000.

Gloucester, Massachusetts, led other fish ports with receipts of 250,000,000 pounds, worth $7,600,000. Gloucester landings were mainly ocean perch and whiting.

Boston, Massachuetts, the Nation's principal port for haddock, cod and pollock, reported landings of 147,200,000 pounds worth $10,500,000 to the men on the boats.

San Diego, California, largely a tuna port, trailed Boston in poundage landed but surpassed the eastern city in value of the catch. Landings at San Diego amounted to 135,300,000 pounds with a value of $18,800,000.

New Bedford, Massachusetts, famous for the scallop and flounder landed there, had 88,000,000 pounds of fish valued at $12,350,000. Portland, Maine, largely an ocean perch port, follower with landings of 58,500,000 pounds valued at $1,886,000.

During the year fishermen of the United States and Alaska caught 5.2 billion pounds of fish, of which 2.8 billion pounds were food fish and 2.4 billions industrial catch. Industrial fish landings were chiefly at Middle Atlantic and Gulf ports.

Fishing in the Desert

Come spring California anglers may be pulling 3 to 15-pound gamey corvinas out of the Salton Sea, California's largest inland body of water, situated in the heart of the southern California desert.

A successful California Fish and Game Department project under the direction of Dr. Boyd Walker, ichthyologist at UCLA, has apparently created a sportfishery in the desert sea, previously known only as a boating and water skiing area.

The project, which included salinity and fish food chain studies, in addition to fish plantings, was started several years ago.

Six species of fish are now found in the Salton Sea. They include corvina, gulf croakers, mullet, threadfin shad, mudsuckers, mosquito fish, and desert pupfish, the only native in the lot.

The corvina, a native of the Gulf of California and similar to the California sea bass, is thriving after two seasons of spawning in the desert sea. More than 100 such fish, weighing up to 16 pounds, have been pulled from the sea by the research group during the past year.

Most abundant fish in the sea have been the gulf croaker, an excellent pan fish. But it seems to be dwindling, according to Dr. Walker, probably due to a food shortage.

Figures Are Up for Oregon Albacore Tuna Landings, 1956

The return of albacore tuna in commercial quantities to waters off the Oregon coast in 1956 after an absence of four years resulted in landings of 3.5 million pounds of this species at Oregon ports, according to the Oregon Fish Commission.

Presence of albacore in offshore waters of the Northwest this year was first confirmed by scattered catches of albacore by two research vessels, the *John N. Cobb* of the U.S. Fish and Wildlife Service and the *Brown Bear* of the University of Washington Department of Oceanography. The vessels were participating in an extensive search for tuna and were studying conditions that could possibly explain the sporadic appearance of albacore in the northeast Pacific Ocean.

Stimulated by the research vessel catches, commercial vessels joined in the search for fishable concentrations of albacore and in late August schools of albacore were located about 70 miles off Newport, Oregon.

Heavy catches continued through September until a drop in price caused many boats to abandon albacore fishing. By early October, landings of locally-caught fish tapered off and the bonanza was over—at least for 1956.

The good albacore run this year was no accident—daily catches per boat were higher than in 1944 when a peak catch of 22.5 million pounds was landed in the state. Had the fish appeared in July, as they formerly did, and had the market remained good throughout fall months, this year's catch might have been comparable to previous good years.

Whether or not albacore will return to Oregon offshore waters in 1957 is a question. Fisheries scientists who have worked on the mystery are reluctant to give explanations of the albacore's movements. There is some evidence that water temperature has an influence on albacore migration.

Some fishermen had predicted the return of albacore early last summer after observing an abundance of albacore food—principally small bait fishes — in the Northeast Pacific Ocean waters. This factor may also have a definite bearing on the appearance of albacore off the Oregon-Washington coast.

PLASTIC MATERIALS for use in boats

Close to 22,000,000 pounds of reinforced plastics went into boats and boat accessories in 1956 according to The Society of the Plastics Industry. This figure covers both civilian and military use, and boats using these materials as a protective hull covering as well as those with hulls made entirely of fiberglass reinforced plastics.

The surging growth in the use of these materials by the boating industry is reflected in estimated sales of 40,000 fiberglass reinforced plastic boats in 1956 as compared to 5,000 in 1950. In releasing these figures, Clare E. Bacon of Owens-Corning Fiberglas Corp., chairman of the Reinforced Plastics Division, pointed out that "Minimum maintenance is one of the most talked about advantages of fibrous reinforced plastics boat hulls involving as it does freedom from seam caulking and seasonal painting, resistance to weather and water exposure deterioration, and imperviousness to worms and dryrot. But these materials have such other advantages to the boat owner as styling and maximum safety, performance, appearance and economy.

"From the safety angle, reinforced plastics have high impact resistance and, since they can be formed into a one-piece hull, obviate the danger of leaks through joints or fastenings. Further, they do not soak up water. Since these materials can be formed to any shape, reinforced plastics hulls makes it possible for the designer to achieve the form that will assure maximum performance. Their method of production also makes possible time and labor savings. Thus reinforced plastic hulls offer economy both in production and in minimum maintenance. For example, color is built into the reinforced plastic itself and goes all through the material, eliminating seasonal refinishing."

At the recent Motor Boat Show at the New York Coliseum, the use of these materials ranged from the spectacular, as in the body of Evinrude's saucer-shaped outboard fishing boat, to the practical, as weight-saving, dent-resistant motor shrouds on a preponderance of outboard motors.

All Sizes and Shapes

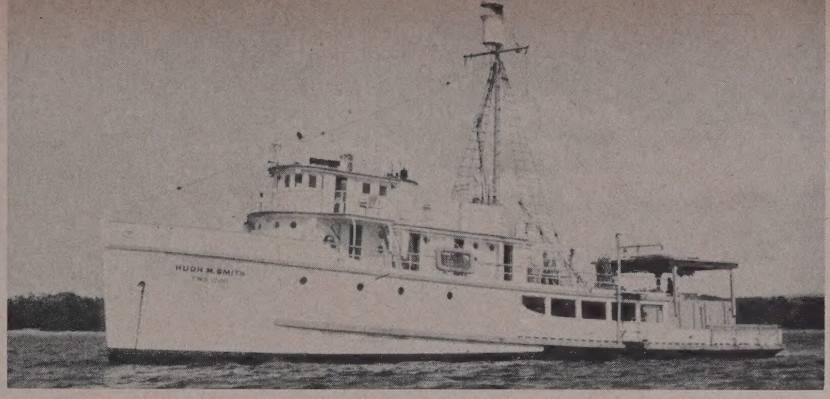
This year's show revealed a step-up in the size of boats made of reinforced plastics with two 41 ft. sloops taking top-size honors. Volume production in fibrous reinforced plastics hulls, however, is in power-driven boats of 16 feet or less.

Over 100 boat manufacturers are now using reinforced plastics for boat hulls, many more for such other marine accessories as decking, masts and spars, cabin structure, seats, outboard motor housings. These materials are used in volume for the hulls of canoes, duck boats, inboard speedboats, outboard racers, rowing and sailing dinghies from 7 to 12 ft., auxiliary cruisers, inboard utility boats from 15 to 24 ft., inboard cruisers from 18 to 28 ft., outboard cruisers from 15 to 20 ft., car-top outboards from 8 to 12 ft., sloops from 15 to 24 ft. and outboard runabouts from 12 to 16 feet in length.

Vacationing Out-of-Doors

Camping in the state parks includes the use of outstanding facilities designed to provide the essentials for long-to-be-remembered outdoor experiences. The standard campsite consists of a parking place, a level place for a tent, a sturdy table with benches for seating six to ten persons, a food locker, and usually a woodburning stove for cooking (some parks provide gas plates).

Nearby to each group of camps, according to the National Automobile Club, are water faucets, toilets and combination buildings with laundry trays and hot and cold showers, available during the vacation season.



Research Ship Hugh M. Smith

Recent POFI Activities

The *Manning* and *Gilbert* completed fall surveys of albacore off the Pacific coast. The survey area lay between 35° and 45° N. latitude and extended from the coast to 150° W. longitude, which is approximately 1,250 miles offshore. Trolling and gill netting were used as survey tools. Two hundred thirty-three albacore were taken on the troll lines while only four albacore were taken in the gill nets. The best single day's catch was 31 albacore taken about 300 miles west of San Francisco, but good catches were made as far west as 150° W. Although the surveys were not conducted in areas that were being fished commercially at the time, it is believed that the band of fish that was defined represents a northward and westward extension of that supplying the existing southern California fishery.

The survey was particularly gratifying because it indicated that the distribution of the fish was closely associated with certain environmental factors. All the catches were made in an area with well-defined limits. The 57° isotherm marked the boundary of the cold side, and on the warm side albacore were limited by the boundary and very blue central northeastern Pacific water and the zone of intermediate water to the north. The boundary between the unproductive and productive waters was marked by a change in transparency and a change in thermal structure as well as by color of the water and the presence of albacore. Thus, it appears that the fall distribution of albacore can be rationally explained in that their presence is associated with the occurrence of the proper environmental conditions.

Worthy of comment are the poor gill net catches in contrast to the relatively good troll catches. They are in marked contrast to the summer surveys conducted in mid-ocean during which the gill nets were several times as successful as trolling. Very possibly the difference lies in the difference in the environment. During the summer surveys the thermocline, that is, the boundary between warm surface water and the intensely cold deeper water, lay within a few feet of the surface. In fact, on occasion the propeller of the survey vessel brought cold water to the surface. Under these conditions albacore, if they are present, are confined to a thin surface skin and might be expected to be vulnerable to gill nets. During the fall surveys the thermocline lay at approximately 200 feet below the surface, affording the albacore a wide vertical range in swimming depth and presumably making them much less vulnerable to surface gill nets.

Skipjack in Gill Nets

In the zone in which we found albacore, zooplankton and forage organisms did not seem particularly abundant. This, together with other indices, suggests that the dormant period of organic production associated with the onset of winter had set in and that it could be expected that albacore would soon abandon the area.

Aside from the albacore, the capture of seven skipjack in gill nets was noteworthy. These fish were taken approximately 500 miles due west of Eureka, California, at water temperatures of 60 and 64 degrees. All were small fish, weighing approximately six pounds. These captures are of interest because skipjack are not usually taken in gill nets and because they are not usually found in such cold water so far north.

The Equatorial Coountercurrent

A publication by Mr. Austin and others of the POFI staff, issued in December, discusses variations in the Equatorial Countercurrent, the major surface easterly flow of water extending from mid-ocean almost to the west coast at about 5° N. latitude. They find that the Countercurrent varies considerably and that these variations are not associated with local variations in the winds, suggesting that this current responds to large-scale ocean-wide changes in pressure gradients.

POFI's experimental tilapia-rearing facilities came into production during December. The plant consists of three redwood tanks designed to test on a small scale the feasibility of rearing small tilapia to serve as tuna bait. Production has not been startling, the maximum being 500 young in one day, but there is every indication that the method can produce significant quantities of tuna bait. Whether or not this can be done economically is yet to be determined.

FISH CONSUMPTION

Where IS IT Headed?

By A. W. ANDERSON

Chief, Branch of Commercial Fisheries
Fish and Wildlife Service
Washington, D. C.

Modern Tuna Cannery at Work

CONSUMPTION of edible fishery products in the United States is now about 10 pounds per capita per year on an edible weight basis. For a number of years the per capita consumption has remained close to this figure.

What the figure is apt to be some years in the future is impossible to forecast with any accuracy. However, a good many predictions are being made about conditions which will prevail in the United States about 20 years from now—say, in 1975.

While 1975 is almost a score of years away and a good many variable and unknown factors are involved, we can evaluate certain developments which may be expected to affect the consumption of fishery products, even if we cannot reach definite conclusions on the eventual outcome.

Population is an important item. In 1975, the United States will have about 220 million people or roughly about one-third more than now. If recent trends continue, an increase in population will require a corresponding increase in domestic production or imports; but will not, of itself, increase or decrease per capita consumption. However, the changed distribution and composition of this population could have such an effect.

For example, people are moving from farms to urban areas. Our surveys show that fish consumption is less in farming areas than in urban areas, so this is a favorable trend if those who move adopt urban customs. More people are moving to the West, the Mountain States, and the South, with the new industries being established there. Coastal Western states have a relatively high fish consumption rate, so again this should be favorable.

We also find that our increased population will have relatively more young people from 10 to 20, and more elderly people over 65. From a dietary standpoint, fish is excellently suited to the needs of elderly people because vitamins, minerals, proteins and fat may be obtained in fishery products almost in any degree desired. Thus, fish consumption would be expected to hold its own or increase in this group and thereby favorably affect overall consumption.

Fish consumption has increased in schools where fish cookery has been demonstrated by Fish and Wildlife Service personnel to the school lunch supervisors. With more young people available in schools, we can expect consumption to continue to increase in this group.

With the increase in population will come a substantial growth in our economy. The Gross National Product—worth about 410 billions of dollars this year—is expected to almost double by 1975. And an increase of over 50% in the real income per person will accompany it, but this may not increase per capita consumption of food products much, if any, simply because human stomachs can hold only a certain amount.

However, there are shifts among foods. Generally, more of the higher priced foods are purchased, more luxury items, and more of the foods which are so advanced in preparation that they are ready to eat with little further work. This is frequently spoken of as foods with built-in maid service. And there may be larger purchases of protein foods and those abundantly supplied with minerals and vitamins. Fortunately, fish of one sort or another, can meet all of these demands. Therefore, fish consumption should not decrease, as has been the case with cereals and potatoes.

An increase in real income indicates higher living standards. People as a whole also are expected to be better educated. They will, therefore, be more discriminating in their purchases, especially with regard to qualities and values. No doubt fish can compete in value but much needs to be done to eliminate the danger of decreased consumption arising from the lack of the highest standards of quality.

The next 20 years will see important changes in the labor force. Already over one-half of our female workers—58.7% in April 1955—are married and the proportion is expected to rise. Undoubtedly this means a shift to food products which can be made ready for the table in a minimum of time with a minimum of effort. It also may mean more meals eaten away from home because of the wife's greater income and the

shorter time she has for preparing food. The wide variety of quickly prepared consumer products already available indicates that the fishing industry is flexible enough to meet any challenge in this field.

By 1975 automation will be commonplace, not only in factories, but in offices and laboratories as well. More use of machines means less physical exertion and a greater demand for foods high in protein, minerals and vitamins. As fish can supply all these demands, the real battle among all foods will be aimed at securing a competitive advantage on production costs and selling prices, or variety, uniqueness, and quality of products. Fish is reasonably competitive in these factors now and may develop even more advantages.

Production costs, for example, might be reduced; mechanize fishing operations, place them on a large scale production basis, use the most efficient gear and functionally designed fishing vessels.

Of unknown, but probably of the very greatest, importance to cutting production costs are the untouched fishery resources and the unexplored areas the industry may be able to draw upon.

Since 1949 there has been a steady increase in the proportion of imported edible fishery products contributing to our total domestic consumption. There is every reason to believe that the percentage—which was 19.7 in 1949 and 35.4 in 1955—will continue to rise, but probably not as sharply. Foreign fisheries have been developing rapidly and show no signs of halting their expansion.

Consumption per capita of all fishery products should not be affected materially by a greater proportion of imported products unless drastic price increases or decreases occur—and thees are not expected to materialize. Only a new processing technique, a new product, or some similar advantage could alter this probability.

Exports of fishery products from the United States to other countries have been declining steadily. There seems little chance of an increase in exports so substantial that the volume would materially decrease overall domestic consumption. This presupposes no wars or police actions since such developments usually decrease consumption and alter trade patterns, especially for canned fish.

The consumption of fish is directly affected by the price and demand for agricultural foods, such as meat, poultry products, and dairy products. A tabulation by the U.S. Department of Agriculture shows a projected increase in meat consumption of 11.8 pounds from 161.2 pounds (carcass weight) in 1955 to 173.0 pounds in 1975 or 7%. Chickens and turkeys were expected to increase from 25.9 pounds (eviscerated weight) per person in 1955 to 32.3 pounds in 1975 or 24%. During the same period egg consumption was expected to jump from 366 per person to 403 or 10%. Cheese consumption would increase moderately from 7.7 to 8.0 pounds or 4%, as part of an increase in the consumption of dairy products (fat solids basis) from 700 to 720 pounds or 3%.

Fruit consumption is expected to increase about 19%; tomatoes and leafy green and yellow vegetables about 16%. Potatoes will drop from 101 to 85 pounds or 16%. Dry beans and peas, grain products and sugar are other foods which are expected to be consumed in lesser quantities.

The projected increases mentioned above do not mean that these competitors of fishery products are expected to make these gains at the expense of fish; instead, on the expectation that the population in 1975 will contain many young people who are relatively heavier eaters.

No doubt there are many other factors which may affect future fish consumption. In the handling and processing of food products we are on the verge of expanded use of antibiotics and radiation preservation. Certainly, fish seem well adapted to antibiotic treatment after catching and should share whatever advantage competitive foods might gain through use of this technique. Radiation pasteurization which will increase storage life is now being tested and may prove effective.

At present, we use over 40% of the annual fish catch for non-edible purposes—mostly for fish meal and fish oil. Neither of these products are of such value as to divert much more substantial quantities of edible fish to non-edible uses than are used at present. However, much more valuable pharmaceutical or industrial products might be derived from fish, to create an industrial technology based on fish much as similar technologies are based on petroleum and coal as basic raw materials. A case in point is the potential use of fish oil sprays to control insects, funguses, and nematodes on citrus trees and certain vegetable crops. Modified fish oils are much more effective than some presently used fungicides, and may become more widely used as fungicides and insecticides.

While it is impossible to weigh accurately the probable gains or losses in the consumption of fish for edible purposes in the next 20 years it appears that any change either way probably will not be very significant . . . unless the industry takes full advantage of its opportunity to exploit the variety and nutritive value of fish, and to present consumers with a product whose quality is unsurpassed. Should this occur fish consumption could increase considerably. *

Tuna Figures Set Record In 1956

Southern California canneries set an all-time tuna production record in 1956, according to figures recently released. The California Fish Canners Association reported that nearly 10 million cases were packed last year at Terminal Island and San Diego. This was approximately one and a half million cases above the 1955 level. Value of the 1956 production is estimated in excess of $115,000,000.

Payments to Southern California tuna fishermen also rose by a substantial margin. The San Pedro and San Diego clipper, purse seine and albacore fleets received more than $42,000,000 for 160,000 tons of raw tuna. In 1955, payments totaled $39,000,000.

"The record pack last year assures ample supplies of economical canned tuna for American consumers," declared Charles R. Carry, Executive Director, California Fish Canners Association. "It also points up the growing demand for this food product because of its moderate price, high nutritional value and many uses on the family menu."

Fish CAN BE INTERNATIONAL

By EDWARD W. ALLEN

An ex-President of the Washington State Bar Association and from 1932 to 1955 an officer and United States member of the International Fisheries Commission, Mr. Allen is widely known as a legal expert in fishery matters. He was a member of the three-man MacArthur Fisheries Mission to Japan in 1949, was adviser to the United States delegation to the Rome United Nations fisheries conference (1955), which is mentioned in his article, and participated in the spring of 1956 in a regional meeting of the American Society of International Law between Canada and the United States.

FIFTY billion pounds is a lot of fish, yet that is what the Food and Agriculture Organization of the United Nations estimates the present annual catches of the seven seas to be.

One need not be an economist or a diplomat to appreciate the impact such a production can have on living standards and on international affairs. In past generations rivalry over fisheries has precipitated wars. The early naval wars between England and the Netherlands were largely due to this cause. It will be remembered how the great Dutch Admiral, Maarten Harpertszoon Tromp, is said to have paraded the English Channel with a broom at his masthead to signify that he had swept the Spanish and British from these seas.

In recent years, by contrast, the necessity for fishery conservation has, in some regions at least, inspired a type of international cooperation at a bread and butter level which, if extended to other fields, might by successful experience bring about the millenium sooner than ivory-tower planners' attempts to produce world unification by force or theory.

It was "herrings" and "spices" which, about the beginning of the 17th century, largely inspired a new era in civilization. It was then, following the "glorious" raids of the previous century on Spanish galleons and villages by Queen Elizabeth's favorite pirate, Sir Francis Drake, and other British dare-devil sea-rovers, that the Dutch launched forth into nautical prominence. The British were claiming monopolistic ownership of the North Sea, the English Channel, and most of the northern Atlantic, while the Spaniards and the Portuguese (until Spain took over Portugal) were asserting exclusive dominion over the south seas clear around the globe.

Then up rose the great Dutch lawyer, Hugo Grotius, often called the "Father of Modern International Law," and expounded the doctrine of "Freedom of the Seas," meaning that the Dutch had just as much right as the English to catch "herrings" anywhere in the North Sea, and just as much right as the Iberians to rob the East Indies natives of their precious "spices."

The Grotius concept, in its broader aspects, gradually gained world support, but at the same time a counter theory made equal progress. This latter was that, regardless of any unbridled freedom out in the high seas, each nation nevertheless owned a strip of water along its own coast as wide as could be defended from the shore. Some claimed that three miles were as far as cannon ever would shoot.

From this evolved the so-called "three mile rule" as the absolute width of this strip, a width still asserted by the "big navy" nations, including our own. But others contended for different widths; Norway, home of cod and halibut fishermen, four miles; Yugoslavia, from where so many of the Southern California tuna fishermen hail, six miles; Mexico, nine; U.S.S.R., 12.

In very recent years, with little background but desire, certain South American countries have aggressively asserted a width of 200 miles for their marginal sea. This has greatly distressed the California tuna fishermen and has caused our Government to register strong protests. It may also have inspired the Soviet Government to create an even wider claim to a salmon protection zone along the Siberian coast which takes in the best North Pacific areas fished last year by the Japanese.

The strip, owned by a nation along its coast, is sometimes called "the territorial sea," "the marginal sea" or "territorial waters."

International Law is a matter of growth; it is the result of trial and error, force and reason; it is basically the approved practice of nations in their relationships with each other. And so it developed that a nation's ownership of its marginal sea is sub-

ject to certain restrictions, such as the right of innocent passage; also that there is not and never has been unrestricted freedom on the high seas, not even for pirates.

A person may own his house and lot, but he also possesses certain rights when he steps out into a street which he does not own. And so nations have always claimed rights extending seaward beyond their own territorial waters. From the first, coastal nations have asserted such extended jurisdiction for defense purposes and for the suppression of smuggling. Quarantine, sanitation, and immigration measures are other illustrations. Exclusive claims to sedentary fisheries far out to sea, such as oysters, pearls, chanks, and sponges have been made for centuries.

One statement often made is that when a nation's vital interests are at stake it may protect them to the extent necessary out into the high seas. "Vital interests" may be difficult to define, but if the world is to be governed by law instead of force, the International Court of Justice might be relied on to apply the principle of "reasonability" to any claim.

Fisheries have become of such world wide importance because of the increased food demands of increasing populations that some one-world enthusiasts have sought to throw the entire management of ocean fisheries into United Nations control and to subject such fisheries to universal straight-jacket regulation. Such a movement disregards the totally different physical, biological, political, geographical, and historical conditions which exist in various portions of the world.

The fisheries off the west coast of North and South America offer excellent illustrations of variance in fish and in progress. Halibut dwell only on comparatively shallow banks, are spawned at sea, migrate back and forth in and out of territorial waters, and except on a few large banks are seldom found more than 25 miles off-shore. The maximum distance is about 100 miles which, of course, is insignificant compared with the width of the Pacific Ocean. They are slow growing, not reaching maturity until from nine to 12 years old. They are found from northern California northward along the shores of Oregon, Washington, British Columbia, and Alaska. They also migrate between Canadian and United States waters. They are essentially a coastal fish of these two countries.

Because these fish are of such slow growth and because of their habits and habitat, the stock is readily subject to over-fishing and depletion. About the time of World War I such depletion did take place. In view of their overlapping interests, Canada and the United States entered into a series of treaties subjecting this fishery to what, up to that time, was the most thorough scientific investigation of any ocean fishery, followed by the first instance of international fishery management through a joint commission whose regulations, when approved by the executives of the two countries, become part of the law of both nations, both within and without their national boundaries. This commission has become so successful that there is probably no other ocean fishery so well stabilized and maintained at such a high level of production. Although at one time the Atlantic was the great halibut producer, this western coast of America now yields from two-thirds to three-fourths of the entire world production.

Historically, fishermen from no other nation have engaged in this halibut fishery. To be sure, a few years prior to World War II, a big British fish company seriously threatened to send a large cold storage mother ship across the Atlantic, through the Panama Canal, and up the Pacific Coast to the halibut banks off British Columbia. There the mother ship would hover more than three miles off shore while the catcher boats would skim the banks that Canada and the United States were so carefully protecting. This would, of course, have practically destroyed the work of the joint commission. When the sportsmanship of the move was challenged, the head of the company responded that all he was interested in was getting the fish and that if anyone tried to interfere the whole British Navy would back him up. However, both Canada and the United States protested to Great Britain and the expedition was dropped.

Pacific Coast salmon (which are not the same as Atlantic salmon) have different characteristics from halibut. They spawn only in fresh water streams and lakes, hence inside some nation's territory. They go to sea in their first or second year, according to species; they return to their specific natal spawning ground, there to spawn and die. There are occasional variations which may be disregarded. At sea some migrate up and down the coast feeding; some take wider courses, but wherever they go at sea they eventually seek to return to the country and place of their origin. It is only as they approach their fresh water streams that salmon reach their full weight. At that time they are also in best condition. Each stream not only has a separate race of salmon; it may have several races, and to secure efficient conservation regulation salmon should not be caught until they are approaching their home streams so that the several races have segregated themselves and can be separately regulated.

As to the races of salmon frequenting the streams of the Gulf of Georgia, British Columbia, and Puget Sound, Washington, Canada and the United States by another treaty created another joint international commission which in turn has made a remarkable record of restoration of the famous "Sockeye" salmon of that area.

One of the greatest fisheries of the world has been that for red salmon in Bristol Bay. During the 1930's, over almost violent opposition from our fishermen, Japanese intruded into this fishery which for decades had been exclusively American. After several years of non-action, our government was finally aroused to the point where our Secretary of State sent a strong protest to Japan in which he asserted our special right to these salmon.

"The fact that salmon are taken from waters off the Alaskan coast are spawned and hatched in American inland waters, and when intercepted are returning to American waters, adds further to the conviction that there is in these resources a special and unmistakable American interest." Although the Japanese did not concede the soundness of our position, they agreed to and did withdraw their people from this fishery and have never engaged in it since.

(Continued on page 16)

Mexico Fish Cannery Destroyed by Fire

The El Sauzal fish cannery and reduction plant near Ensenada, Baja California, was destroyed by fire on December 3, 1956. The establishment was completely razed with the exception of the landing pier. The loss is estimated to be between 15 and 20 million pesos (US$1,200,000 to $1,600,000). Of the 46,000 cases of canned fish (mostly California sardines) damaged, about 10,000 cases were salvaged.

The cannery, the largest fish cannery in Mexico, was one of four plants in or near Ensenada packing sardines and mackerel principally for consumption within Mexico. It is not anticipated that the destruction of the plant will cause a shortage of canned sardines in Mexico, for the 1956 season was a good one for sardines and canned supplies are plentiful. It is understood that reconstruction will begin soon and will require four or five months to complete. The first five months of the year generally are not particularly good for sardines. While the new plant is under construction, the canning facilities of another cannery in Ensenada will be used.

Fishery Research

Two Honolulu-based research vessels of the FAWS, the *John R. Manning* and the *Charles H. Gilbert*, returned December 11, from extensive investigations of albacore tuna resources between Hawaii and the Pacific coast, according to an announcement by Dr. Albert L. Tester, director of the Pacific Oceanic Fishery Investigations. Departing Honolulu in mid-October, the two ships ran zigzag courses, fishing with gillnets and trolling lines along the way, to the West Coast, where they refueled, the *Manning* at Astoria, Oregon, and the *Gilbert* at San Francisco. The objective of the cruises was to ascertain the whereabouts and abundance of the valuable albacore tuna in the vast, unfished area outside of the coastal fishing grounds of the Mainland fishery. The Mainland fishery declines in the fall, and the route of egress of the albacore has been a mystery. The temperature and chemical composition of the sea water were studied to get an idea of the kind of waters favored by the albacore, and 173 fish were marked with plastic tags and released in the hope that recaptures will reveal their seasonal migratory movements in and out of the fishing grounds.

1956 Production of Fish Sticks

Preliminary statistics indicate that the United States production of fish sticks in 1956 totaled 53.2 million pounds, according to the U.S. Fish and Wildlife Service. This was a decrease of 19% compared with the 65.4 million pounds produced in 1955. Production of these items in 1954 totaled 50.0 million pounds and in 1953 only 7.5 million pounds. The production figures for 1956 seem to indicate a leveling off during the year at about 4.4 million pounds per month.

Production is still centered in the New England States which accounted for about 62% of the 1956 total. During the year, 30 of the 47 producing firms in the United States were located in the Atlantic Coast States and accounted for 43.2 million pounds—81% of the total production. Six plants located in the interior of the country and in the Gulf States manufactured 6.1 million pounds and 11 firms situated in the Pacific Coast States produced 3.9 million pounds.

Precooked fish sticks (46.3 million pounds) accounted for 87% of the total production while uncooked

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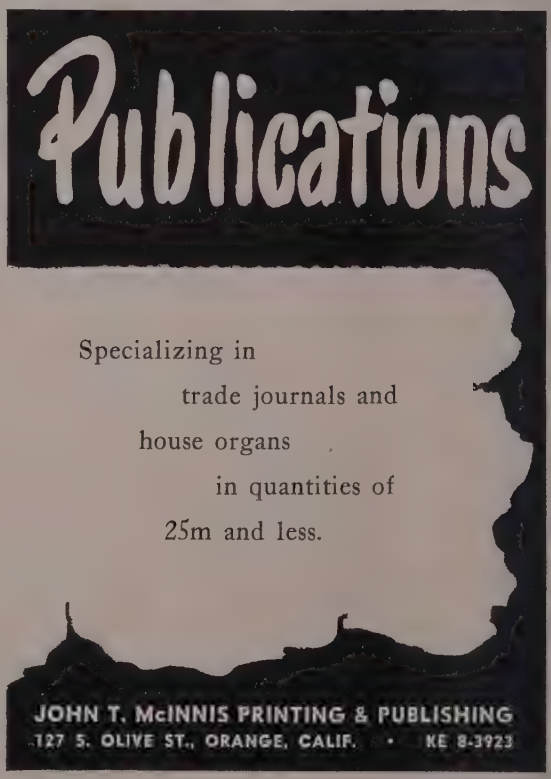

sticks (6.9 million pounds) accounted for the remaining 13%. The largest quantity of fish sticks produced in any one month in 1956 occurred in March when 6.1 million pounds were manufactured. The lowest production period occurred in July when only 3.2 million pounds were produced. The largest quantity of fish sticks ever produced during a single month occurred during March 1955 when 7.4 million pounds were packed.

Strange Story of Sugarfoot

Of all the bandits who prowled the roads of California in the 1880s. perhaps the coolest and most daring was one whose life is still wrapped in considerable mystery, whose real name has been lost somewhere in the past, and who is now known only by his nickname, Sugarfoot, a name he got from his habit of wearing sugar sacks on his feet whenever he went about the business of holding up a stage.

Sugarfoot, according to the National Automobile Club, was full of tricks. When he held up a stage he always seemed to pick the best possible stretch of road and carry off the whole affair with perfect timing and the greatest of nonchalance. He would carry a 44 Winchester repeating rifle slung over his right shoulder with a piece of baling wire that was attached at one end to the stock and at the other end to the barrel. In this way he could swing his rifle around in any direction with his good right hand and use his left hand to pass the hat among the "customers."

This was the technique he used when he staged what was probably the most spectacular holdup of the day. On a warm summer afternoon he stepped out from behind some rocks in the Mother Lode country to bring to a halt a stagecoach that was moving along at the head of a straggling caravan comprised of three stages, five freight wagons, and a company of 150 soldiers who were on their way to Yosemite Valley to act as guards during the summer season.

One by one the stages and freight wagons came to a halt, and down the line went Sugarfoot, his right hand poised on the Winchester that swung from his right shoulder and his left hand holding the hat in which he collected his loot. When the company of soldiers arrived, Sugarfoot coolly told them to halt, hold their places, and keep their hands away from their guns. The fact that he knew the commanding officer had relieved the soldiers of all their ammunition before they left or their trip to the park probably helped him considerably to maintain his coolness.

After taking money and jewelry from the passengers, a strongbox from the lead stagecoach, and a lunch from the driver of one of the freight wagons, Sugarfoot ordered the caravan to move on its way. When the soldiers had rounded the bend of the road, about a dozen of them were given ammunition and sent out in pursuit of the elusive bandit. All they found was the empty strongbox and the remains of a hastily eaten lunch.

Sugarfoot eventually came to a violent end when he made the mistake of holding up Six-Horse Charley, a wildish woman who could drive a stagecoach as well as any man and swung her Winchester just a little faster than "the baling-wire bandit."

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More U. S. Funds for Fisheries

SECRETARY of the Interior Fred A. Seaton has increased by $3,595,000 the funds allotted for market, technological and biological research and for the exploration and development of American commercial fisheries. With the $3,000,000 currently allotted for this work, the total now available is $6,595,000 for the fiscal year.

Funds for this activity are provided from customs receipts on fishery products. Expenditures are under the direction of the Bureau of Commercial Fisheries.

Funds available through the Saltonstall-Kennedy sources are larger this fiscal year than normal because the Fish and Wildlife Act of 1956 permitted the use of some accrued receipts. In the future the amount of money available through this source will approximate $4,500,000 per year.

The new allocations increased the amounts available for fishery biological studies in the commercial fishery field from $1,376,500 to $3,394,000, an addition of $2,017,500.

Other commercial fishery studies, which include exploration and gear research, economic research, market reports, market development and education, and technological research, have been allotted $2,814,000, an increase of $1,395,500 over the initial amount granted. Miscellaneous items including administration, total $387,000 under the new allotment, compared with $205,000 previously.

The additional funds will help the Bureau of Commercial Fisheries begin work on the backlog of fishery problems which have been calling for attention for some years but for which funds were not available.

Tuna Research

An allotment of $630,000 will finance a three-year research program on tuna. Studies will be undertaken in the area fished by the Pacific Coast tuna men, a vast region north of the equator and extending for several hundred miles into the Pacific ocean.

This work will include research of hydrographic fronts, food prevalence under varying oceanic conditions, tuna and tuna bait fish behavior under changing conditions and numerous other items which will help technicians understand and forecast tuna abundance.

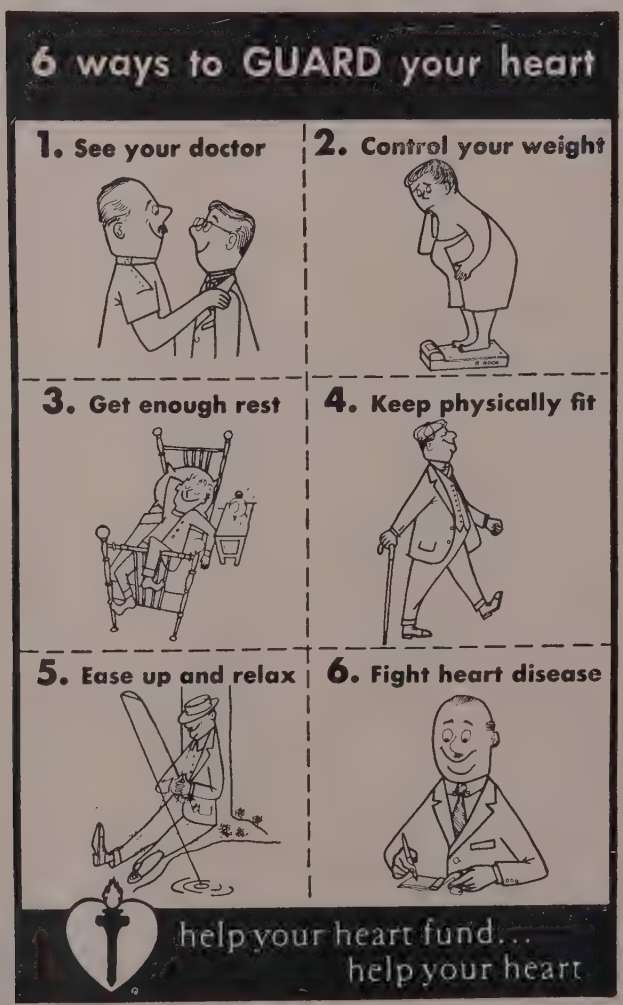
Coastal and offshore biological research was granted an additional $1,009,500 making $2,073,200 available for that purpose. Alaska salmon research will get $389,600 of this money which will give a big impetus to research in that important fishery. Total available for the Alaska salmon research is $572,600.

Salmon and Other Fisheries

Projects include development of methods for more accurately predicting salmon runs and measuring escapement, studies of migration patterns of red and pink salmon and causes of pink salmon mortality during the fresh water phase of its life history. Nearly $84,000 of the new money was earmarked for Pacific herring studies in Alaska and $130,000 was allocated to study Alaska's king crab.

Because more biological data is needed on sea scallops, flounders, whiting and ocean perch, $145,000 was added to the $294,000 designated for the North Atlantic trawl fishery. North Pacific ocean fisheries got $90,000; menhaden research got $121,000, principally for work in the Gulf of Mexico; Atlantic striped bass work got $20,000 added to $32,000; and $30,000 was added to the Gulf of Mexico expenditures for improvement of research facilities.

Oyster problems got the bulk of the extra shellfish research money, $108,000. Under the previous allocation, the New England, Gulf and Middle Atlantic oyster fisheries each had $25,000 for research matters. $75,-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000 was allocated for new blue crab research. The total now set up for shellfish research is $258,000.

Market Development

Eighty thousand dollars has been provided for radiation preservation research on fishery products as part of the President's Atoms for Peace programs; $50,000 for extending tuna quality studies to the processing stages; and smaller amounts for development of a chemical index for fishmeal and for new uses for fish oil and meal.

Economic studies, especially on fish consumption, have been allotted $242,000 under the revised plan, of which $104,000 represents added funds. For the promotion of the use of domestic fishery products by marketing studies and educational means $300,000 was added to the original $317,500.

The bulk of the added money—$250,000—is for market development activities, including special marketing programs, and intensive studies of market patterns. Because the Nation is only partially covered with respect to school-lunch and similar programs the balance will be devoted to filling these gaps. ★

Frozen Food Sales Up

Frozen food sales in 1956 are estimated up 35% from 1954, based on a survey made by a grocery publication. Sales of frozen foods as compared to total sales also rose over 4½% of gross sales.

Cabinet space now used by retail stores for frozen products has increased 50% in two years and averages over 20 lineal feet per store. The group of supermarkets which were used in this study had nearly 36 feet of frozen food cabinets while the small store group had only 13 feet.

Competition in the frozen food field has become greater. This is indicated in the lower gross markup—in 1956 it was around 18½%—whereas in 1954 it was 21½%.

Fish sticks were the leading fishery item carried by the three groups of stores covered. Of the reporting markets, 99% had fish sticks for sale. The survey showed that 97% of the supermarket stores carried fish sticks while 95% of the small stores had them.

Uncooked shrimp were on sale by 81% of the three types of stores. Uncooked fillets of all kinds were the third leading item and were found in 73% of the outlets.

Tuna pies and fried shrimp were available in 61% of the stores. Frozen lobster tails, fried scallops and fried fillets were on sale in less than 50% of all the stores.

In general, all of the eight fishery products listed above could be found more often in the supermarkets, as compared with the superette or small store group. This may be due partly to the fact that the supermarkets have two to three times the display space for frozen foods.

Japanese Fund for Sales Promotion

The Japanese International Tuna Association during its first formal meeting voted to spend about $417,000 during this Japanese fiscal year to promote the sale of canned tuna in the United States. The funds will be derived 50% from Government sources and 50% from industry, states a report from the United States Embassy in Tokyo.

Fish Can Be International

(Continued from page 11)

Contrast these two localized fisheries with tuna. Although the life history of tuna has not yet been unraveled as has that of the halibut and salmon, it is known that tuna are sea-rovers. They may, in fact do, approach the coasts of this or that nation, but such action is only a passing episode in their lives. They are born at sea and rove it far and wide, though avoiding the colder waters. They cannot be classified either as localized or coastal. Like the whales, they claim no allegiance to any particular land.

The eastern Pacific Ocean tuna fishery originated with Southern California fishermen. They gradually expanded their efforts as they increased the range of their vessels, until now their beautiful clippers, costing up to half a million dollars, travel thousands of miles seeking their prey. It was they, not the South Americans, who developed the tuna fishery westward from Ecuador and Peru. Some Californians appear to believe that the recent South American claims for a 200 mile width of ocean ownership may not be based so much upon an asserted desire to conserve the tuna which in their migrations swing within that range, as to levy tribute upon foreign fishermen.

In any event the difference between the two northern fish referred to and tuna is as striking as the difference in the progress of fishery conservation in these two regions. The Canadian and Unites States northern fishermen believe that they have special and exclusive rights to the halibut and salmon fisheries which they alone developed and for whose conservation they have endured many years of rigid regulation based upon extensive research. They point out that they are catching the maximum amounts that the fisheries are producing on a sustained yield basis and that the intrusion of alien fishermen will not increase the world's food supply but that such interference will tend to defeat the present effective conservation management.

The success of the halibut and salmon commissions has stimulated other conservation movements. The Northeast and Northwest Atlantic each now has its own organization. An open end treaty tuna commission is studying that fish. The Food and Agriculture Organization has promoted fishery councils for the Indo-Pacific and for the Mediterranean Sea areas. Recently the United States and Canada concluded long protracted negotiations for a Great Lakes fishery treaty.

The United Nations General Assembly arranged for a fishery conference to be held in Rome in the spring of 1955. Forty-five nations were represented. About the only official action agreed upon was to encourage regional fishery conservation treaties. Unofficially the delegates were about equally divided between those who favored the protective rights of coastal nations in their coastal fisheries and those who did not wish anything to interfere with their roving wherever they pleased. On one point, however, all agreed; no representative present apparently wished the United Nations or any of its subsidiaries to dictate the management of ocean fisheries.

The Rome meeting was followed by a session of the International Law Commission, also a United Nation's subsidiary, which is charged with the duty of making recommendations concerning International Law. They have wrestled repeatedly with the confusing problems arising out of fisheries. Criticism in this country to their latest proposals centers particularly upon their failure to recognize the variance between fisheries, both physical and historical, in different world areas. For instance, the "abstention" principle, hereafter described, which is so vital to Canada and the United States, where progress in international fishery conservation management far exceeds that of any other part of the world, is completely ignored.

Perhaps the members of the International Law Commission should not be too severely criticized for their lack of perception of the realities of ocean fisheries, as it is possible that the fishing industry has not sufficiently exerted itself to present the practical aspects of fisheries to the Commission.

A treaty negotiated at Tokyo between Japan, Canada, and the United States, among other things, embodied the so-called "abstention" principle. This is that where a nation has itself developed one of its coastal fisheries, has subjected it to scientific investigation and to conservation regulation, and is making reasonably full use of such fishery on a sustained yield basis, such nation has acquired a special right to such fishery which other nations are bound to respect. The principle can apply to two nations jointly. Insistence upon the firm maintenance of this principle by our own government is exceedingly important to our own fishermen and to our own country.

Specifically, the Japanese agreed that this abstention principle applied to North American salmon, halibut, and herring (with certain minor limitations) and that for the period of the treaty, providing that Canada and the United States lived up to the treaty requirements, which it is believed they are doing, Japan would abstain from engaging in these particular fisheries regardless of the distance seaward that they extend.

Because no one knew whether there might be a co-mingling of Asian and American salmon, or where an appropriate dividing line between them might be, a tentative line of 175° west longitude was agreed upon and the International North Pacific Fisheries Commission, created pursuant to the treaty, was charged with the duty, among other things, of determining exactly where such a line properly belongs.

To carry out this duty the Commission agreed upon a coordinated program to be carried out by the three nations, each assuming an assigned part. The United States alone expects to have at least five vessels engaged.

It is the ambition of these international fishery commissions not merely to increase and stabilize fishery food production, important as that is, but also to facilitate the peaceful solution of international fishery problems and to promote international good will. It is sound policy for our own government to encourage this ambition but at the same time to be viligant to see that in the process no legitimate interest of our own people is being sacrificed. *

* * *

The Salton Sea in Southern California is more than 30 miles long, about 13 miles wide, but has an average depth of only about 20 feet, according to the National Automobile Club.

U. S. Second to Japan in Fishing

The United States, with a fish catch of same 2,687,000 metric tons a year, is second to Japan as a fish catching nation, according to the *FAO Yearbook of Fishery Statistics* (Vol. V, Production and Fishing Craft), just published by the Food and Agriculture Organization (FAO), Rome.

Although there was a slight reduction in the 1955 U.S. catch as compared with the 1954 figure of 2,706,400 tons, the general trend is towards increased production, as the following figures (in metric tons) show: 2,253,100 (1938); 2,409,900 (1948); 2,390,600 (1952) and 2,437,500 (1953).

This increase in the catch over that of pre-war years is in accordance with the general picture for North America and for the world in general.

Of the total catch of North America (3,800,000 tons), herrings, sardines, anchovies, etc., account for the largest share, 1,260,000 tons (1955). Next come cods, hakes, haddocks, etc., with 630,000 tons and third (of the fish), salmons, trouts, smelts, etc. with 230,000 tons. Mollusks account for 660,000 tons and crustaceans for 220,000.

This increase in fish production is, again, in line with the world trend. According to the *Yearbook*, the world catch of fish has risen from 19,390,000 (1948) to 27,720,000 metric tons (1955), or more than 40%. The catch is now almost 40% higher than it was before the 1939-45 war.

The tables reflect the remarkable recovery of the world's fishing industry since the war, with Japan firmly in the lead of fishing nations. In 1948 the Japanese fishing fleet landed about 2,430,000 metric tons. By 1955 the figure had risen to 4,720,000 metric tons, some 2,000,090 tons more than the second biggest fishing nation, the United States which, including Alaska, landed 2,687,00 metric tons in 1955. USSR, with an officially published 2,500,000 metric tons (excluding aquatic mammals), is the world's third largest fish producer.

According to the *FAO Yearbook*, quoting statistics published in China (mainland), that country is the fourth biggest fishing nation with an estimated 2,000,000 metric tons in 1955. Other fishing nations catching more than 1,000,000 metric tons annually are Norway (1,867,00) and the United Kingdom (1,099,700).

Japan's Canned Sardine Export Pack

The pack of canned sardines for export by the Japanese for the 12 months ending November 30, 1956, amounted to 537,000 cases (48 15-oz. cans to a case) as compared with 420,000 cases for the similar period in 1954-55.

Exports of Japanese sardines are made principally to the Philippines, Gold Coast, Belgium, Egypt, and Burma. As of November 30, 1956, 530,000 cases had been sold for export according to a December 7 dispatch from the Embassy in Tokyo.

The figures for the total pack of sardines for 1956 are not available at this time, but indications are that the pack will exceed the 1955 pack of 787,000 standard cases.

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America has homework to do!

THERE'S PROBABLY a lot about your town that makes you want to brag a bit about it.

But there's one thing you *can't* be proud of. And it's a shame you share with just about every other community in America.

The homes where far too many people live are a disgrace. Slums, semi-slums, housing blight are with you. Fixing them up is the homework to be done.

If your town is like most in the U. S., here's what the figures show: 1 out of every 10 homes are rock-bottom slums. Nearly one-half urgently need basic repairs.

But slums are something that is happening on the other side of town, you may say. The problem isn't mine.

Slums are YOUR homework

Distance is no barrier against the threat and cost of housing blight.

Your taxes go up because it takes more money for your town to fight the diseases and delinquency and poverty spawned in the slums. The security of your family goes down because the slum is the natural parent of crime.

Where your business comes in

Every firm has a responsibility toward the town where it's located. Part of it is to support community improvements as any other good citizen would.

Some slums are beyond repair. They must be torn down and a fresh start made. Others can be made to conform to accepted living standards. So it is up to you to get behind every sound program which seeks to provide adequate housing for all our people.

Civic and individual groups must have business backing . . . *your* firm's backing if they are to succeed.

Follow the course of Action!

A group of Americans from every walk of life has joined together in a non-profit organization to combat home and community deterioration, A.C.T.I.O.N., the American Council To Improve Our Neighborhoods.

Send today for a free copy of "ACTION." It explains what A.C.T.I.O.N. is and proposes to do. It lists booklets, research, check-lists, and other material which can help you. Address P. O. Box 500, Radio City Station, New York 20, N. Y.

ACTION

American Council To Improve Our Neighborhoods

POSTMASTER: Second class mail. If undeliverable notify sender stating reason on Form 3579, Pan American Fisherman, P.O. Box 650, Orange, Calif.

Library, Pacific Oceanic Fishery Investigations
P. O. Box 3830
Honolulu, T. H.

gvt-1

Working Toward a . . .

BIGGER AND BETTER FISHERY MARKET

MOST fishery interests agree that things are looking up for the future. Some of our most troublesome problems are being recognized and helpful solutions searched out—by both business and government authorities. You can read about them on other pages in this magazine.

With the American economy in general on a high level, and most lines of business apparently destined to remain that way, we believe that the fisheries situation also will shape up quite satisfactorily in the days ahead.

Our efforts now and always are dedicated to the creation of bigger and better markets for canned tuna, and to advance the best interests of the entire tuna industry.

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Star-Kist Foods, Inc. · Sun Harbor Packing Company
Chicken-of-the-Sea, Inc.
West Coast Packing Corporation · Western Canners Company